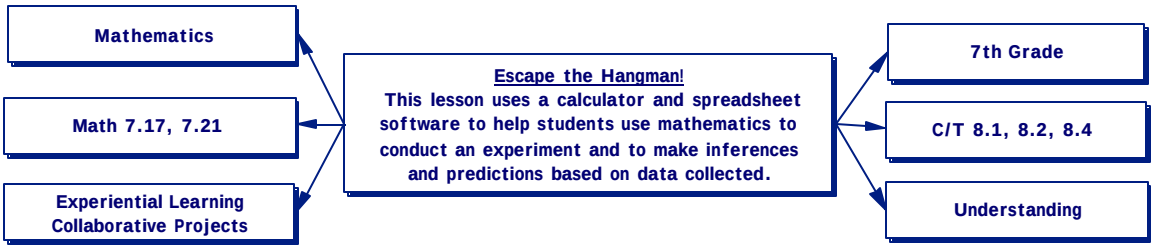

Escape the Hangman!

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Curriculum Area	Mathematics
Subject Area	Probability/Statistics
Grade Level	7th grade
Learning Objectives	• The student will conduct an experiment involving data collected. • The student will identify helpful uses of spreadsheets and create a spreadsheet for a specific purpose. • The student will make inferences and predictions based on data. • The student will develop a strategy based on data collected.
Correlation to the SOL	Math 7.17, 7.21 C/T 8.1, 8.2, 8.4
Video/Technology Hardware/Software Needed	**For class:** Computer Computer Projection System Spreadsheet software (such as *Microsoft Works* or *ClarisWorks*) **For each student:** Calculator
Materials Required	**For class:** Board and Markers or Chalk **For each student:** A copy of the Tally Worksheet Various newspapers and magazines
Procedures/Activities	1. Play the game of "Hangman" with the class for a few minutes. Ask, "Do you think that math could help you win this game? Do we use more letters than others in the English language? Could we create some mathematical rules that would help us make sure we win?" 2. Have students choose a page from any newspaper or magazine. Starting anywhere on the page, mark the beginning and end of a selection of words that equal about 400 letters. 3. Have the students use the Worksheet to tally the totals for each letter of the alphabet.

	4. Using a calculator, have the students calculate the percentages of each letter. (Note: the total of the percentages may not equal exactly 100% because of rounding.) 5. Students should list their top and bottom 10 letters. Compare and contrast the students' lists and talk about what might cause any differences in their results. 6. Tell them that in order to create a more accurate assessment, we would want to pool our data. Demonstrate how this could be done by adding each student's count for "A" and then dividing by the total number of students. Lead them into a realization that using a spreadsheet would help do this quickly and accurately, especially with the use of the AVG function. 7. Create a spreadsheet with the help of the students and have students enter their own data. 8. When the data has all been entered, totaled and averaged, make a list of the top and bottom 10 letters. Challenge the students to create 10 words entirely from the top 10 letters. Then challenge them to create 10 words that do NOT include any letters from the top 10 letters. 9. Have students work in small groups of 3-4 students to develop a winning strategy for "Hangman," incorporating the information they now have. Help them brainstorm other variables that might be involved (e.g., position of letter in word, length of word, etc.) 10. Play Hangman in teams to put their strategies into action.
Content Assessment	Have students write a paragraph detailing their planned strategy and explaining the rationale.
Technology Integration Assessment	The teacher should observe the use of the calculators and spreadsheet during the class.
Extensions	**Math:** Determine which type of graph would give you a good graphical representation of the data. Using the spreadsheet software, create the graph. **Media/English:** Using advertisements, have students determine what types of words are used most commonly in advertisements. This can be determined by word type (adjective, adverb, etc.), or by some other category determined by the students. Conduct a similar data analysis as in the above activity.

Tally Sheet for Letters of the Alphabet

Letter	Tally	Total	Percentage
A			
B			
C			
D			
E			
F			
G			
H			
I			
J			
K			
L			
M			
N			
O			
P			
Q			
R			
S			
T			
U			
V			
W			
X			
Y			
Z			
GRAND TOTALS			